2004 HAN INFORMATION SERVICE MESSAGE#001

TO: **EMERGENCY ROOMS, LABS, INFECTION CONTROL PRACTITIONERS, REGIONAL RESOURCE CENTERS AND BOH/DIVISON OF DISEASE CONTROL**

FROM: **MEDICAL EPIDEMIOLOGY PROGRAM, DIVISION OF DISEASE CONTROL, BUREAU OF HEALTH**

SUBJECT: **DIAGNOSTIC TESTING FOR WEST NILE VIRUS AND RELATED ARBOVIRAL INFECTIONS**

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To: Emergency Rooms, Labs, Infection Control Practitioners, Regional Resource Centers and BOH/Division of Disease Control

From: Medical Epidemiology Program, Division of Disease Control, Bureau of Health

Date: 18 June 2004

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Diagnostic Testing for West Nile Virus and Related Arboviral Infections

At the end of this month, the Maine Bureau of Health will begin seasonal active surveillance efforts for West Nile Virus (WNV) infection. Surveillance methods will include ecologic monitoring (birds, horses, and mosquitoes) and diagnostic testing in the setting of human illnesses consistent with possible WNV infection.

As noted in the attached guidance, we are strongly urging Maine physicians to submit specimens for diagnostic testing in the following situations:

- ***Any patient with encephalitis, aseptic meningitis, or acute flaccid paralysis (or any other severe neurological signs associated with fever).***

If evidence of human WNV transmission in Maine develops during the season, we will also be strongly urging that WNV testing be ordered for:

- Pregnant women with unexplained febrile illnesses.

In addition, clinicians who wish to do so may also submit serological specimens from other patients with unexplained febrile illnesses (although the likelihood of arborviral disease in any given individual with mild febrile illness is very low.)

All submitted specimens will be tested for evidence of acute WNV infection, as well as for evidence of acute infection with St. Louis encephalitis virus (SLE) and for eastern equine encephalitis (EEE). In addition, specimens from patients with a diagnosis of encephalitis will be tested for evidence of Powassan (POW) virus infection, a tickborne illness related to WNV and SLE.

The attached documents summarize this guidance in greater detail and include technical specifications related to specimen handling and transport. Any questions on West Nile should be referred to the Epidemiology program at 1-800-821-5821. Updates and current data on WNV infection in Maine will be found at:
http://www.maine.gov/dhs/boh/ddc/westnile.htm

Guidelines:
Diagnostic Testing for West Nile Virus
and other Arboviral Infections

Summary: During the summer and early fall, Maine clinicians should consider West Nile Virus (WNV) infection in the differential diagnosis of all patients with aseptic meningitis, encephalitis, acute flaccid paralysis, or other severe neurological signs associated with fever. If evidence of WNV transmission to humans in Maine develops this season, testing is also recommended for pregnant women with unexplained febrile illnesses. The Health and Environmental Testing Laboratory (HETL) of the Maine Bureau of Health will provide testing of diagnostic specimens free of charge in these cases. Clinicians may also wish to submit specimens on other patients with unexplained febrile illnesses, although testing in these situations should be considered a lower priority (note: testing in these settings is also free of charge). This document provides guidance on diagnostic testing and a technical summary of specimen collection and handling requirements for microbiology laboratories. For any questions call 1-800-821-5821.

Highest Priority Testing for WNV Infection:

- Any patient with aseptic meningitis, encephalitis, or acute flaccid paralysis.

The Bureau of Health strongly encourages that you submit cerebrospinal fluid and serum on any patient diagnosed with encephalitis, aseptic meningitis, or acute flaccid paralysis. Testing will be done for IgM antibody to WNV, and also for antibody to St. Louis Encephalitis (SLE) and to Eastern Equine Encephalitis (EEE). For patients with a diagnosis of encephalitis, screening for Powassan virus infection will also be performed. Detailed technical information on shipping is included in the attached microbiological guidance. A clinical and demographic information form (attached) should be completed and faxed to the Bureau of Health when submitting a specimen.
(*Note: HETL does not test specimens for HSV infection; Herpes testing must be done separately!*)

Specimens to be submitted: At least 1.0 ml. of cerebrospinal fluid, and 0.5 ml of separated serum drawn between 0 and 8 days after onset of illness. A convalescent serum specimen drawn 2-3 weeks after the first specimen should be submitted for persons with negative tests whose illnesses remain unexplained.

WNV Testing in Other Settings:

- Pregnant women with unexplained fever.

The Centers for Disease Control and Prevention (CDC) is gathering data on pregnancy outcomes for approximately 70 women diagnosed with WNV illness during pregnancy in 2003. In December 2003, CDC convened an expert panel to address concerns related to evidence of transplacental WNV transmission in women infected during pregnancy. The CDC panel recommended that pregnant women who have meningitis, encephalitis, acute flaccid paralysis, or unexplained fever *in an area of ongoing WNV transmission* should have serum (and cerebrospinal fluid [CSF], if clinically indicated) tested for antibody to WNV. If serologic or other laboratory tests indicate recent infection with WNV, these infections should be reported to the state health department, and the women should be followed to determine the outcomes of their pregnancies. Details of these recommendations can be found at: http://www.cdc.gov/ncidod/dvbid/westnile/congenitalinterimguidelines.htm

Comments: In the absence of ongoing transmission of WNV to humans in Maine, the probability that WNV is causing fever in pregnancy remains very low. If evidence of human WNV transmission develops during the season (or the pregnant woman has recently spent time in an area of active transmission) the importance of WNV testing in this setting will become greater. CDC does not recommend WNV testing of asymptomatic pregnant women.

Specimens to be submitted: An acute specimen of at least 0.5 ml. of separated serum obtained between days 0 and 8 of illness. If acute testing is negative and the cause of illness remains unexplained, a convalescent specimen obtained 2-3 weeks after the initial specimen was drawn should also be obtained. See detail on attached technical guidance sheet for more information. (note: If CSF is obtained for other testing, a specimen should also be submitted- see above).

- **Other persons with unexplained febrile illnesses.**

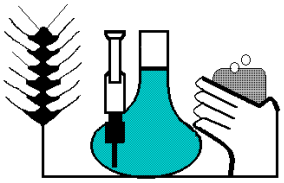
West Nile fever is a self-limiting and generally mild illness that occurs in approximately 20% of persons with WNV infection (meningitis and encephalitis occur in less than 1% of cases). Reports from earlier outbreaks describe this milder form as a febrile illness of sudden onset often accompanied by one or more of the following: malaise, headache, myalgia, rash (maculopapular or morbilliform, involving the extremities, trunk, and/or neck), nausea and vomiting, eye pain, and lymphadenopathy. The incubation period has a range of 3 to 14 days with symptoms that generally last 3 to 6 days, before complete recovery.

There is no specific treatment for West Nile fever and there are no known sequellae after this illness. The signs and symptoms are generally indistinguishable from those associated with the many other viral illnesses that may affect persons during 'West Nile season' and the probability of WNV infection in any individual with mild febrile illness during the summer or early fall is very small.

There may be situations, however, in which a clinician wishes to submit a serum specimen for WNV testing from a person with unexplained febrile illness. The HETL is willing to accept and test such specimens (without charge), but testing may be deferred or delayed if there is a heavy demand for testing of persons with high-priority conditions (see above). All submitted specimens will also be tested for antibody to St. Louis Encephalitis (SLE) and to Eastern Equine Encephalitis (EEE). Please complete and fax a copy of the attached patient information form when submitting specimens.

Specimens to be submitted: An acute serum specimen of at least 0.5 ml of separated serum.obtained between days 0 and 8 of illness. If acute testing is negative and the cause of illness remains unexplained, a convalescent specimen obtained 2-3 weeks after initial specimen was drawn should also be obtained. See detail on attached technical guidance sheet for more information.

Further Clinical Guidance: For an excellent and authoritative summary of WNV clinical issues (updated for 2004) from CDC and the American College of Physicians, go to: http://pier.acponline.org/physicians/public/d951/d951.html



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CLINICAL SPECIMEN REQUIREMENTS FOR ARBOVIRAL TESTING

(Updated 06/04)

Maine Bureau of Health encourages health care providers to submit specimens for diagnostic testing for any patient with: (1) encephalitis, (2) aseptic meningitis, (3) acute flaccid paralysis, and (4) any other severe neurological signs associated with fever. In addition, clinicians may also submit serological specimens from patients with unexplained febrile illness. Specimens will be screened for West Nile virus (WNV), Eastern Equine Encephalitis (EEE), and St Louis Encephalitis (SLE). Please call the Virology section at HETL to let us know you are submitting specimens.

SPECIMENS

1. **Spinal fluid (CSF)**
   -Volume - at least 1.0 ml
   -Collect at time of onset, or up to 3 days after onset of symptoms.
   -Tests available: EIA serology for IgM; Confirmation by plaque neutralization done at CDC.
   -Handling and storage: Handle with BSL 2 precautions. If you are able to get the sample to the lab within 48 hrs, ship on ice; otherwise freeze immediately at -20 C.

2. **Serum. PAIRED SPECIMENS REQUESTED**
   -Acute-phase serum is collected 0-8 days after onset of illness.
   Convalescent-phase serum is collected 14-21 days after the acute serum sample. Convalescent specimens are required to demonstrate seroconversion and rule out false negative results if the acute specimen is negative.
   -Volume: At least 0.5 ml separated serum
   -Tests available: Serology for screening: We do IgM Capture ELISA routinely. IgG offered only in special cases. Please contact the HETL laboratory prior to requesting IgG arboviral testing.
   -Handling and storage: Handle with BSL 2 precautions. If you are able to get the specimen to the lab within 48 hours ship on ice, otherwise, freeze all samples at -20 C.
   Note: We encourage collecting serum at onset, and again at 14 -21 days.

3. **Tissues. Prior arrangements with the HETL laboratory must be made.**
   -Brain tissue: include various regions, i.e. cortex, midbrain and brainstem
   -Handling and storage: individual specimens should be divided. Both portions should be frozen. Use BSL2 precautions.
   -Tests available: isolation of virus, immunohistochemistry, gross pathology, histopathology, indirect fluorescent antibody testing, rt-PCR. Tissues will be processed at CDC.
   Note: If tissues have been collected, freeze immediately and notify the HETL Virology section.

FORM: Human Arboviral Request Form and the Virology requisition (see attached)

SHIPPING: Ship all specimens as diagnostic unless West Nile virus has already been diagnosed. Avoid freeze-thaw situations. Ship on wet ice unless shipping will be postponed more than 48 hours, in which case freeze samples and ship frozen.

IMPORTANT INFORMATION TO ACCOMPANY SPECIMENS
The "Human Arboviral request form" should accompany all specimens. This is available at the web site: "http://www.state.me.us/dhs/boh/ddc/wnvclinical.htm". The Maine HETL will be glad to send or fax this form to you as needed.

Edited 6/04 J. Gunderman-King H:West Nile Virus/Clinical Specimen Submission604